

Auckland 2009 Antibiotic Susceptibility Testing Percentage Susceptible

EAR/ RESPIRATORY TRACT INFECTIONS

Otitis Media / Sinusitis

- *S.pneumoniae*
- *M.catarrhalis*
- *H.influenzae*

Acute Exacerbations of Chronic Bronchitis

- Respiratory viruses, e.g. *Influenza*
- *Mycoplasma, Chlamydomphila*
- *H.influenzae*
- *S.pneumoniae*
- *M.catarrhalis*

Antibiotics seldom of benefit

Pharyngitis

- *S.pyogenes*

Community-acquired Pneumonia

- *S.pneumoniae*
- *Mycoplasma pneumoniae*
- *H.influenzae*
- *Legionella pneumophila*
- *Chlamydomphila pneumoniae*
- *S.aureus*

URINARY TRACT INFECTION

- *E.coli*
- *P.mirabilis*
- *S.saprophyticus*

SKIN AND SOFT TISSUE

Impetigo/cellulitis

- *S.pyogenes*
- *S.aureus*

Number of each species isolated - not all tested against every antibiotic. Repeat isolates from the same patient are excluded.

	GRAM-POSITIVE							GRAM-NEGATIVE												
	<i>Staphylococcus aureus</i> MSSA (16,955)	<i>Staphylococcus aureus</i> MRSA (1,839) (9.8% of <i>S.aureus</i>)	<i>Staphylococcus saprophyticus</i> [all urinary isolates] (1,282)	<i>Streptococcus pneumoniae</i> (944)	<i>Streptococcus pyogenes</i> (Cp A Strep) (4,281)	<i>Streptococcus agalactiae</i> (Cp B Strep) (678)	<i>Enterococcus</i> species [99% urinary isolates] (1,849)	<i>Moraxella catarrhalis</i> (160)	<i>Neisseria gonorrhoeae</i> (358)	<i>Haemophilus influenzae</i> (1,261)	<i>Escherichia coli</i> [96% urinary isolates] (15,363)	<i>Klebsiella</i> species [86% urinary] (1,887)	<i>Proteus</i> species [88% urinary isolates] (1,041)	<i>Enterobacter</i> species [53% urinary isolates] (678)	<i>Serratia</i> species [28% urinary isolates] (241)	<i>Citrobacter</i> species [76% urinary isolates] (282)	<i>Morganella morganii</i> [64% urinary isolates] (159)	<i>Shigella</i> species (22)	<i>Pseudomonas aeruginosa</i> [26% urinary isolates] (1,105)	<i>Acinetobacter</i> species [19% urinary isolates] (142)
Penicillin	13	R		75	S	S		R												
Fludoxacillin	S	R			S															
Amoxicillin	13	R	97	a	S	S	99	R		79	49	R	84	R	R	R	R	82	R	R
Amox/Clav	S	R	99	a	S		99	S		99	95	95	99	R	R	86	R		R	82
Cefaclor	S	R	99	a	S		d	S		99	97	91	97	R	R	91	R		R	R
Erythromycin	91	78		85a	96	91				Re										
Clindamycin	c	c				88														
Tetracycline	98	97		76a	84b			S		98									R	
Cotrimoxazole	99	99		73a	b		d	93		77			90	95	97	56	30	R	94	
Trimethoprim **	96		93				d				76	79	86	92	78	95	74		R	
Nitrofurantoin **	100	100	100			Sf	99				99	84	R	56	R	98	R		R	R
Norfloxacin **	98		100				91				95	97	99	98	96	99	92	86	97	93
Ciprofloxacin	r	74r			R				68		95	94	99	99	99	99	95		98	99
Gentamicin				R	R		d	S		S									99	98
Ceftriaxone									100											
Fusidic acid	79	73																		
Chloramphenicol (topical)	S	S		S	S			S		S	S	S	S	S	S	S	S		R	R
Mupirocin (topical)	87	90			S															
Neomycin (topical)	S	S			R			S		S	S	S	S	S	S	S	S		R	S
Polymyxin (topical)	R	R			R					S	S	S	R	S	R	S	R		S	S

** for urinary isolates

S usually, or always, susceptible

R usually, or always, resistant

not tested: the antibiotic is not usually appropriate treatment for this bacterium

r rapidly selects for resistance

- S. pneumoniae* susceptible to penicillin can be considered susceptible to ampicillin, amoxicillin, amoxicillin/clavulanate, cefaclor, and cefuroxime: these agents are not tested routinely against penicillin susceptible strains. Penicillin non-susceptible *S. pneumoniae* are less susceptible to all β -lactam antibiotics, but this relative resistance is of little significance in the case of amoxicillin which, in standard or high oral doses, is still likely to be effective in treating most pneumococcal infections other than meningitis. The same is true for parenteral cefuroxime and parenteral penicillin itself. Cefaclor is less active than these agents against *S. pneumoniae*, and although effective against penicillin susceptible strains, is not recommended for treatment of infection due to penicillin non-susceptible strains. Isolates with reduced susceptibility to penicillin are also commonly resistant to erythromycin, cotrimoxazole and tetracycline. Amoxicillin remains the oral treatment of choice for most infections due to *S. pneumoniae* despite relative resistance *in vitro*. Note: clavulanate adds nothing to the activity of amoxicillin versus *S. pneumoniae*.
- No official interpretive criteria exist for testing *S. pyogenes* susceptibility to cotrimoxazole and tetracycline. Cotrimoxazole and tetracycline are not appropriate treatments for streptococcal pharyngitis.
- For staphylococcal susceptibility testing, erythromycin is a surrogate for clindamycin. Erythromycin resistant strains are commonly resistant to clindamycin. Erythromycin susceptible isolates are rarely clindamycin resistant.
- Enterococcus* spp.: cephalosporins, gentamicin and cotrimoxazole may appear active *in vitro* but are not effective clinically.
- There are no established breakpoints for testing *H. influenzae* against erythromycin (or roxithromycin) by the disc method. Most isolates of *H. influenzae* are only moderately susceptible to these antibiotics and it may be prudent to assume resistance.
- No official interpretive criteria exist for testing *S. agalactiae* susceptibility to nitrofurantoin.